DOCUMENT RESUME

ED 279 774 UD 025 389

TITLE Project MASTER, 1985-1986. OEA Evaluation Report.
INSTITUTION New York City Board of Education, Brooklyn. Office of Educational Assessment.
PUB DATE [86]
GRANT G00-53-5043
NOTE 34p.
AVAILABLE FROM Office of Educational Assessment, New York City Board of Education, 110 Livingston Street, Brooklyn, NY 11201.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Bilingual Education Programs; Elementary Education; Hispanic Americans; *Limited English Speaking; Mathematics Education; Program Effectiveness; *Program Implementation; Science Education; *Spanish Speaking; Staff Development; *Vocational Education
IDENTIFIERS *New York (Bronx)

ABSTRACT

In 1985-86 Project MASTER an innovative Title VII program emphasizing language development through bilingual instruction in mathematics and science, served 640 students of limited English proficiency (LEP) at six elementary schools in the Bronx, New York. Most of the students were born in Puerto Rico, but many were from the Dominican Republic, Colombia, and several other Central and South American countries. The project, in its first year of a three-year funding cycle, emphasizes the use of both Spanish and English in the classroom in order to provide students with opportunities to transfer to English the communication skills they had acquired in learning their native language. At the same time, this approach enables students to master content-area subjects necessary for graduation. Parent participation and staff development activities formed an important component of the project, although the lack of a parent trainer limited the effectiveness of the parental involvement effort. Student performance on evaluation tests indicates the MASTER students made statistically significant gains in English and science, but students' scores in mathematics decreased from pretest to posttest. In general, the program's effectiveness could be improved if the project were staffed as originally proposed. Figures and statistical tables are included. (KH)

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PROJECT MASTER

1985-1986

OEA Evaluation Report

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O.E.A. Evaluation Section Report

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Grant Number: G00-53-5043

PROJECT MASTER

1985-1986

Project Director:
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A SUMMARY OF THE REPORT

Project MASTER, a multi-site instructional program in its first year of a three-year funding cycle, was administered centrally by the Office of Bilingual Education of the New York City Board of Education. It operated at six sites in the Bronx -- P.S. 1, P.S. 25, P.S. 29, C.S. 47, C.S. 77, and C.S. 102. Each semester, the program served 640 Spanish-speaking students of limited English proficiency in grades three through six. Most of them were born in Puerto Rico. The rest were from the Dominican Republic, Colombia, and several other Central and South American countries. In general, students were placed in the program if they scored below the cut-off on the Language Assessment Battery (LAB). However, students who scored above the cut-off could participate in the program if their parents requested it.

Project MASTER emphasizes the use of both Spanish and English in the classroom in order to provide students with opportunities to transfer to English the communication skills they had acquired in learning their native language. At the same time, this approach enables students to master content-area subjects necessary for graduation. The project places special emphasis on using this approach in math and science. During its first year of operation, Project MASTER emphasized the development of the science component.

Three funding sources supported Project MASTER: tax-levy, Chapter I, and Title VII. Title VII funds supported all administrative and support staff. Instructional services were provided by 25 tax-levy and Chapter I teachers. Development activities for staff members included training sessions for paraprofessionals, provided by the project director and the resource teacher; on-site training for paraprofessionals, provided by the resource teacher; university courses attended by paraprofessionals; and professional conferences, seminars, and workshops attended by all staff members. Parents of program students were involved in the project through an advisory board and attendance at workshops.

Students were assessed in English reading skills (Language Assessment Battery); mathematics (Stanford Diagnostic Test in 1985 and Metropolitan Achievement Test in 1986); and science (program-developed test). Quantitative analysis of student achievement data indicates that:

-- The 178 students for whom complete LAB data were available were the only ones whose English achievement could be accurately assessed. Of this group, third- and fourth-grade students pretested and posttested on Level 2 made statistically significant gains. Fifth graders made only small gains. (Gains could not be computed for third graders who were pretested at Level 1 and posttested at Level 2, or for sixth graders who were pretested at Level 2 and posttested at Level 3.)

-- Although students in all grades scored higher on the pretest (Stanford Diagnostic Test) than on the posttest (Metropolitan Achievement Test), the only significant decrease was among fifth

graders. However, it is difficult to assess whether these lower scores reflected diminished achievement or problems in vertically equating scores on the two tests.

-- Thirty percent of the students passed the science pretest and 76 percent passed the posttest, indicating that the program achieved its objective in this area.

The program's overall effectiveness could be improved if the project were staffed as originally proposed -- with two resource teachers, six educational assistants, and one full-time parent trainer.

ACKNOWLEDGEMENTS

The production of this report, as of all Office of Educational Assessment/Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Eulalia Cabrera has interpreted findings and has integrated material into reports. Arthur Lopatin has edited the reports following the O.E.A. style guide and has written report summaries. Finally, Joseph Rivera, Marcia Gilbert, Bruce Roach, Gladys Rosa, and Martin Zurla have worked intensively as word processors to produce and correct reports. Without their able and faithful participation, the unit could not have handled such a large volume of work and still produced quality evaluation reports.

TABLE OF CONTENTS

		PAGE
I.	OVERVIEW	1
II.	STUDENT CHARACTERISTICS	4
	Entry Criteria	4
	Composition	4
III.	PROGRAM DESCRIPTION	7
	Organization	7
	Project Design	9
	Implementation and Activities	10
IV.	FINDINGS	13
	Readings in English	13
	Mathematics	18
	Science	20
	Staff Development	22
	Parental Involvement	23
V.	CONCLUSIONS AND RECOMMENDATIONS	24

LIST OF FIGURES AND TABLES

		PAGE
Figure 1:	Organization of Project MASTER.	8
Table 1:	Distribution of Program Students by Site and Grade.	5
Table 2:	Number and Percent of Program Students by Country of Birth.	6
Table 3:	Growth in English Proficiency (Grades Three, Four, and Five).	16
Table 4:	English Language Achievement (Students Pretested and Posttested on Different Levels).	17
Table 5:	Mathematics Achievement.	19
Table 6:	Science Achievement.	21

PROJECT MASTER

Headquarters:	131 Livingston Street Brooklyn, New York 11201
Year of Operation:	1985-86, first year of a three-year cycle
Target Languages:	Spanish and English
Number of Students:	640
Participating Sites:	P.S. 1, P.S. 25, P.S. 29, (Community School District 7); and C.S. 47, C.S. 77, C.S. 102 (Community School District 12)
Project Director:	Barbara Gerard

I. OVERVIEW

Project MASTER is an innovative Title VII program emphasizing language development through bilingual instruction in mathematics and science. During 1985-86, its first year, it operated at six sites in two community school districts (C.S.D.) in the Bronx. The project's target languages were Spanish and English. According to the project director, the total number of limited English proficient (LEP) students served during the 1985-86 academic year was 640.

MASTER was administered centrally by the Office of Bilingual Education (O.B.E.) of the New York City Board of Education, and its staff consisted of a project director, a resource teacher, three paraprofessionals (two educational assistants and a parent trainer), and a secretary, all of whom devoted one hundred percent of their time to project activities and were funded by Title VII. The project also involved 25 Chapter I and tax-levy teachers.

Three of the targeted schools were located in C.S.D. 7: P.S. 1, P.S. 25, and P.S. 29. P.S. 1 is an elementary school encompassing kindergarten through fifth grade. Of the 564 students enrolled, 99 percent were eligible to receive free lunch. Seventy percent of the students were Hispanic. In the 1985-86 academic year, grades three through five participated in Project MASTER.

P.S. 25 encompassed kindergarten through sixth grade. In 1985-86, it had a total enrollment of 415 pupils, of whom 94 percent were eligible for free lunch. The school was reported to be 98 percent Hispanic. Two third-, two fourth-, two fifth-, and one sixth-grade class participated in Project MASTER.

At P.S. 29, of a student body of 598, 72 percent were Hispanic, and nearly 98 percent came from poverty-level families. Forty-six percent of the students read below grade level. The school's third-, fourth-, and fifth-grade students were eligible for Project MASTER.

The remaining three schools -- C.S. 47, C.S. 77, and C.S. 102 -- were located in C.S.D. 12. Community School 47 encompasses kindergarten through fifth grade. Sixty-eight percent of its 1,212 students were Hispanic; of these, 19 percent were LEP. Seventy-two percent of the students were eligible for free lunch and 54 percent read below grade level. Grades three, four, and five participated in Project MASTER at this school.

Of the 1,884 students enrolled in C.S. 77, 64 percent were Hispanic; 46 percent read below grade level; and 84 percent were eligible for free lunch. Two third-, one fourth-, and one fifth-grade class participated in the project.

At C.S. 102, 64 percent of the school's 1,606 students were Hispanic, 80 percent were eligible for free lunch, and 46 percent read below grade level. Students in grade three participated in the project.

II. STUDENT CHARACTERISTICS

ENTRY CRITERIA

In accord with the terms of the Aspira Consent Decree, project services were offered to schools with high concentrations of students who scored below the twenty-first percentile on the English Language Assessment Battery (LAB) and higher on the Spanish LAB than on the English LAB. In addition, students who were referred by their parents, regardless of their test scores, were also included. Thus, both the English- and the native-language proficiency of Project MASTER students varied.

COMPOSITION

The project provided data for 571 (89 percent) of the 640 students who were served in grades three through six during 1985-86: 65 students at P.S. 1, 197 students at P.S. 25, 75 students at P.S. 29, 81 students at C.S. 47, 125 students at C.S. 77, and 28 students at C.S. 102. (See Table 1 for the distribution by grade level and school site of the project students for whom information was reported.)

Most pupils were of Puerto Rican background, although some had been born in New York City. The remaining students were from Colombia, Ecuador, the Dominican Republic, Honduras, and other Central and South American countries. (See Table 2.)

TABLE 1

Distribution of Program Students by Site and Grade

	District 7			District 12			Total Number
Grade	P.S. 1	P.S. 25	I.S. 29	C.S. 47	C.S. 77	C.S. 102	
3	25	53	27	28	62	28	223
4	21	59	23	29	29	0	161
5	19	39	25	24	34	0	141
6	0	46	0	0	0	0	46
Column Total	65	197	75	81	125	28	571
Percent	11	35	13	14	22	5	100

TABLE 2

Number and Percent of Program Students
by Country of Birth

Country of Birth	Number	Percent
Puerto Rico	275	48
Dominican Republic	58	10
Colombia	13	2
Honduras	9	2
Haiti	8	1
Ecuador	6	1
Panama	3	*
Mexico	2	*
Guatemala	2	*
Costa Rica	2	*
El Salvador	1	*
Bolivia	1	*
Paraguay	1	*
Argentina	1	*
Central and South America (country unspecified)	180	32
TOTAL	562**	100

*Less than one percent.
**Data were missing for nine students.

III. PROGRAM DESCRIPTION

ORGANIZATION

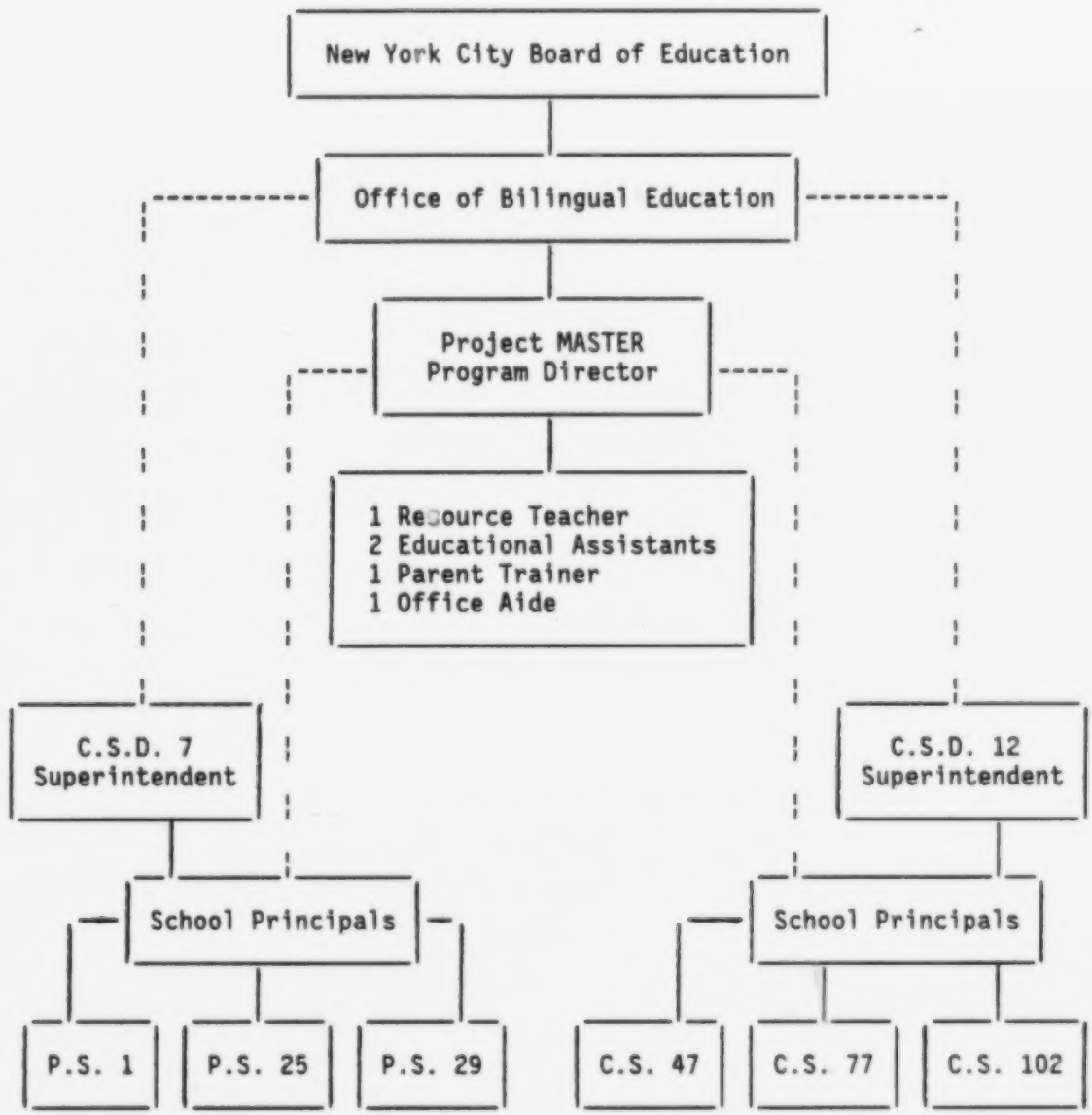
Reporting to the director of O.B.E., the director of Project MASTER was responsible for administration, staff supervision, and financial management. She directly supervised the Title VII staff, which consisted of one resource teacher, two educational assistants, one parent trainer, and one office aide.

Official communication about Project MASTER went from the director of O.B.E., to the superintendents of C.S.D. 7 and 12, to site principals. This communication primarily concerned planning, funding, changes in approved activities, and testing requirements. The project director communicated directly with site principals on the implementation of approved program activities.

The principals, with the support of appropriate members of their supervisory staffs, supervised the teachers and paraprofessionals at their respective schools. (Figure 1 shows how Project MASTER was organized.)

FIGURE 1

Organization of Project MASTER



PROJECT DESIGN

Project MASTER was designed to simultaneously serve two major needs of program students -- to develop English proficiency, and to learn science and math. The project used a holistic approach to second language development, in which students learned the second language by building on communication skills developed in the first. This approach was implemented in both science and math classes. The learning process was facilitated by placing LEP students who were at varying levels of English proficiency in the same class.

To achieve its goals, the Project MASTER design included the provision of a Title VII resource room for each site, as well as staff development and parental involvement activities.

However, funding cutbacks led to several modifications in the project's design. The proposed project staff included two resource teachers: one to develop math and science curricula, plan lessons, and train paraprofessionals and teachers in the "hands-on" approach to instruction; and another to train both project staff members and participating teachers in computer-assisted instructional techniques. But since the latter position was not funded, all staff members received part-time hands-on computer training at the Bronx Technical Center so they could then train the 25 tax-levy and Chapter I teachers who were taking part in the project. Outside sources of additional computer training, such as Teachers College, were also identified. The math and science resource teacher conducted teacher training activities for the 25 teachers at six schools and planned and implemented language learning activities for the students participating in the project.

The project had also proposed assigning one paraprofessional to each participating school. But because of budget cutbacks there were only two educational assistants, each of whom served two sites, and a parent trainer, who had to provide instructional assistance at the two remaining schools, in addition to fulfilling parent-training responsibilities at all six sites.

Because of these limitations, staff members concentrated their first-year efforts on developing the project's science component. Unfortunately, however, the project could establish the proposed science resource rooms only at P.S. 29. At the remaining sites, overcrowding and other factors forced the project to set up resource centers in corners at the back of classrooms.

IMPLEMENTATION AND ACTIVITIES

The project's initial planning period ran from October through December 1985; by March 1986, the project was in full operation (with the modifications discussed above) at all six sites.

The resource teacher developed curricula, planned classroom lessons, and secured curricular materials for student use. She met weekly with the educational assistants at the project's resource room (at P.S. 29) to discuss lesson plans and train the assistants in the use of curricular materials.

On-site, the resource teacher aided the educational assistants on an individual basis in the classroom, demonstrated the use of the science materials, and frequently, in cooperation with classroom teachers, taught lessons.

The educational assistants presented the science materials to participating students twice weekly at each of the schools to which they were assigned. They also met twice a week with classroom teachers -- once to plan and coordinate the MASTER lesson with the science curriculum, and once more to plan appropriate follow-up assignments and activities (e.g., films, readings).

The dynamism, motivation, and high energy with which Project MASTER's educational assistants approached their classes was noted by a member of the evaluation team. The assistants knew almost every student's name, despite the limited time they spent at each school, and the admiration of both students and teachers was apparent in the way they were welcomed.

A member of the evaluation team observed several lessons at five of the six participating schools. Lesson topics included fish dissection, egg hatching, creating papier-maché imitations of human internal organs, discussions of the solar system, physical changes during puberty, and mini-reviews on vertebrates and arthropods.

Both Spanish and English were used for instruction, but English was emphasized, with new terminology being introduced in English and, if necessary, reviewed in Spanish.

Students' projects were displayed in the classrooms and on hallway walls, and they were eager to demonstrate their creations and talk about their newly acquired knowledge.

In interviews, several classroom teachers readily admitted that they had initially been suspicious of the program. Now, however, they were enthusiastic, and stated that "...students are doing things I could never

prepare for and follow-up myself..." and "the program brings in things, like fertilized eggs, that I have no access to."

It was reported that even mainstream science classes visited bilingual ones during MASTER presentations to share materials and participate in workshops.

A member of the evaluation team also visited the project's resource room at P.S. 29 and was impressed with its contents. Globes, a three-dimensional anthropology model, charts, maps, plants, electrical contraptions, and other materials were stored there when they were not traveling from school to school. Of particular interest were the students' personal "time lines," which were juxtaposed with a time line of world events.

IV. FINDINGS

The evaluation findings for the 1985-86 academic year included both objectives measurable by standardized test results and those based on examination of program materials and records, site visits, interviews with school personnel, and a questionnaire. In the following section, evaluation findings are presented by objective as proposed to and accepted by the Office of Bilingual Education and Minority Languages Affairs, U.S. Department of Education.

READING IN ENGLISH

-- By the end of the first year of the project, it is expected that participating students will demonstrate a significantly higher rate of growth in reading skills in English than similar non-participating students, as measured by a comparative analysis of pretest and posttest raw and normal curve equivalent (N.C.E.) scores on the Language Assessment Battery (LAB), Levels 2 and 3.

The LAB* was administered once each academic year on a citywide basis. To assess students' achievement on the LAB, a correlated *t*-test was computed using scores from the previous year (spring 1985) as the pretest and the most recent scores (spring 1986) as the posttest. This statistical analysis determines whether the difference between pretest and posttest

*The Language Assessment Battery (LAB) was developed by the Board of Education of the City of New York to measure the English-language proficiency of non-native speakers of English in order to determine if their level of English proficiency is sufficient to enable them to participate effectively in classes taught in English. The areas measured are listening, reading, writing, and speaking. The LAB was designed to maximize the discrimination of the test for the non-native at the 20th percentile on the norms for an English-proficient sample. This is the cutoff point for eligibility for bilingual and E.S.L. instruction. The Kuder-Richardson reliability estimate for the total test was .97 for the high school level (Level 4). Studies have shown that the relative difficulty of items was highly similar for both native and non-native speakers, thus validating the homogeneity of the test's content.

mean scores is significantly greater than would be expected from chance variation alone.

There were LAB scores for 277 students in 1985 and scores for 306 students in 1986. However, only 178 students took the test both years. Many of those tested in 1985 were mainstreamed and did not take the LAB. Others who entered the system in 1986 did not have scores for 1985.

A *t*-test was performed for those students who had complete LAB pretest and posttest scores; the results for students who were pretested and posttested on the same level are presented in Table 3 and the results for students who changed levels are reported in Table 4.

Raw scores were converted to Normal Curve Equivalent (N.C.E.) scores, which are normalized standard scores. They have the advantage of forming an equal interval scale so that scores and gains can be averaged. For the norming population, N.C.E.s have a mean of 50, a standard deviation of approximately 20, and a range from 1 to 99. Thus, scores can be compared to the norming population.

As Table 3 indicates, N.C.E. gains for third- and fourth-grade students pretested and posttested on Level 2 were statistically significant. Third-grade students generally made larger gains than fourth-grade students. Fifth graders, however, made smaller gains in listening, reading, or writing and their gains were not significant. This implies that these students are improving at a slower rate than other program students.

Gains for third graders who were pretested at Level 1 and posttested at Level 2 were statistically significant. Gains for sixth graders who

were pretested at Level 2 and posttested at Level 3 were significant for the areas of reading and writing but not for listening. Means and standard deviations for these students are reported in Table 4.

Overall, results of most t-tests for English LAB N.C.E. score gains were statistically significant. This suggests that students' improvement in English proficiency was greater than could be expected by chance. Thus, the program achieved its proposed objective.

TABLE 3

Growth in English Proficiency

Significance of Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the Language Assessment Battery (English), Level 2, by Grade (Grades 3, 4, and 5)

			Pretest		Posttest		Difference	
Grade	Subtest	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
3	Listening	10	26.1	19.9	35.5	13.5	9.4**	11.4
	Reading	10	19.1	9.7	32.2	14.9	13.1*	9.9
	Writing	10	19.0	10.2	29.9	12.8	10.9*	8.9
	TOTAL	10	18.0	10.0	31.8	14.6	13.8*	8.9
4	Listening	42	26.5	15.7	35.0	19.2	8.5*	20.3
	Reading	42	25.8	9.7	30.5	18.5	4.7**	14.6
	Writing	42	26.2	7.2	30.8	14.2	4.6**	14.3
	TOTAL	42	23.3	8.6	29.4	13.6	6.1*	10.4
5	Listening	27	25.4	18.4	28.5	19.9	3.1	22.3
	Reading	27	18.9	9.2	22.7	18.9	3.7	18.9
	Writing	27	18.0	8.8	21.4	11.8	3.4	12.4
	TOTAL	27	16.8	10.4	20.0	11.9	3.2	11.6

*Statistically significant at the .05 level.
**Statistically significant at the .01 level.

TABLE 4

English Language Achievement

Significance of Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the Language Assessment Battery (English) by Grade, Subtest, and Test Level

GRADE 3

		Pretest N.C.E. Score Level 1		Posttest N.C.E. Score Level 2		Difference	
Subtest	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Listening	88	27.7	25.1	36.3	21.1	8.6**	30.4
Reading	88	26.5	19.4	32.0	14.3	5.5*	23.3
TOTAL	88	17.8	17.9	30.0	10.5	12.2**	18.3

GRADE 6

		Pretest N.C.E. Score Level 2		Posttest N.C.E. Score Level 3		Difference	
Subtest	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Listening	11	19.7	17.1	28.5	19.3	8.8	14.2
Reading	11	12.0	7.4	27.8	11.9	15.8**	8.3
Writing	11	15.5	10.4	37.5	26.6	22.1**	19.9
TOTAL	11	10.7	10.1	26.5	15.0	15.7**	9.4

*Statistically significant at the .05 level.
**Statistically significant at the .01 level.

MATHEMATICS

-- By the end of the first year of the project, it is expected that participating LEP students will demonstrate a significant increase in math concepts and skills, as measured by a comparative analysis of pretest and posttest N.C.E. scores on the New York City Mathematics Test, Metropolitan Achievement Test (MAT).

Students were pretested on the Stanford Diagnostic Mathematics Test (S.D.M.T.) and posttested on the MAT, which replaced the S.D.M.T. in 1986 as the Board of Education's instrument for measuring mathematics achievement. The MAT is designed to measure competence in five interrelated areas of mathematics: concepts of numeration, geometry and measurement, problem solving, application of whole numbers, and application of concepts. In order to compute gains, S.D.M.T. N.C.E. scores were vertically equated with MAT N.C.E. scores.

Table 5 presents the results of the mathematics test. Students in all grades had lower N.C.E. scores on the posttest than on the pretest. However, the only significant decrease was among fifth graders, whose posttest scores were approximately five N.C.E.s lower than their pretest scores.

It is impossible to know whether the students did not perform as well as the norm group or whether there was a problem with using equated scores. A more appropriate analysis will be conducted next year when the scores will be based on the same test.

TABLE 5

Mathematics Achievement

Significance of Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores of Students in Mathematics, by Grade

		Pretest		Posttest		Difference	
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
3	122	34.3	20.8	31.3	25.0	-3.0	24.7
4	99	37.9	23.7	36.3	27.0	-1.5	21.8
5	85	40.0	20.0	35.0	24.0	-4.9**	18.2
6	24	38.8	18.5	34.7	24.6	-4.1	13.5

**Significant at the .01 level.

SCIENCE

-- By the end of the first year of the project, it is expected that participating LEP students would have mastered an average of 70 percent of the science concepts and skills on a program-developed criterion referenced test.

The program-developed science test was administered in spring 1985 and spring 1986. Data were available for 506 students who took both tests.

The test was designed as a pre-instruction/post-instruction measure of conceptual development in the following areas: plants and animals, the human body, the solar system, earth science, and electricity and magnetism. The test has ten questions, complete and correct answers to which are worth ten points each.

On the spring 1986 test, scores ranged from five to 100, with a mean of 70 and a standard deviation of 16. Therefore, the program objective was achieved.

In addition, in the spring of 1985, students had a mean score of 51 and a standard deviation of 19, and results of a t-test indicate that the difference between pretest and posttest scores for students is statistically significant. Table 6 presents the proportion of students who passed each test by grade. Twice as many third, fourth, and fifth graders passed the posttest than passed the pretest. More sixth graders passed the posttest than passed the pretest, but since they had a high passing rate at pretest, the increase in their posttest passing rate was less than that of the third, fourth, and fifth graders.

TABLE 6

Science Achievement

Significance of the Raw Score Differences Between Initial and Final Test Scores of Students on the Program-Developed Science Test, by Grade

		Pretest			Posttest			Difference	
Grade	N	Mean	S.D.	Percent Passing	Mean	S.D.	Percent Passing	Mean	S.D.
3	185	48.6	21.2	30	69.9	17.4	69	21.3*	12.7
4	138	51.2	17.2	29	70.4	15.9	72	19.3*	8.8
5	136	50.4	17.8	24	69.3	16.0	71	18.9*	9.3
6	46	57.2	18.5	50	71.8	15.7	74	14.6*	11.6

*Statistically significant at the .01 level.

- Overall, students met the criterion of mastering an average of 70 percent of the science concepts on the posttest.

STAFF DEVELOPMENT

-- By the end of the first year of the project, it is expected that 100 percent of the educational assistants in the target schools will enroll in a program leading towards teacher certification as assessed by documentation of registration in a degree-granting program at a local university.

Because all three of the project's educational assistants were enrolled in undergraduate degree programs (at Lehman and City Colleges), the proposed objective in this area was met.

During 1985-86, Project MASTER staff participated in several types of staff development activities. During the project's first three months, the director and the resource teacher teamed up to train the educational assistants at the central office. Topics included the role of the paraprofessional, bilingual education, the classroom environment, and computer technology.

The educational assistants also received weekly training at the central office from the resource teacher. Among the topics covered in these sessions were the holistic integration of subjects, mathematics and science mini-courses, language acquisition, and the functions of learning resource centers. A member of the evaluation team attended one such meeting. It consisted of a discussion of official business, problem solving, and a lesson on how to teach a class about the incubation of eggs. Instruction used a hands-on approach that emphasized thinking and discovery, not rote learning.

All staff members were trained in computer use at the Bronx Technical Center and Teachers College. They also met twice a month to discuss project activities. The project director attended four conferences on computer education for managers at Teachers College, and the resource

teacher attended a four-session workshop on how to develop science curricula. Finally, both the project director and the resource teacher attended five training seminars at the Bilingual Education Multifunctional Service Center at Hunter College and two lectures on language acquisition at Yeshiva University.

PARENTAL INVOLVEMENT

-- By the end of the first year of the project, it is expected that 50 percent of the parents of LEP students participating in the project's schools will have attended parent conferences, seminars, or workshops as assessed by attendance records kept by the project.

Because the parent trainer also served as an educational assistant at two schools, the project could not offer the parents of participating students the full range of workshops and services it had proposed. According to the project director, monthly parent workshops were held at every school on such topics as bilingual education, mathematics and science, leadership training, and health and nutrition. Approximately 20 parents attended each session. Twelve parents also participated in the project's Advisory Council, which met four times a year.

VII. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Although Project MASTER was in its first year, its hands-on approach, which emphasized the acquisition of language through the content areas, was very favorably viewed by principals and teachers. All of those who were interviewed wanted the program to be expanded.

Based on formal observations and interviews with staff members, students, and parents, Project MASTER was found to be a successful program because it is rooted in a sound educational philosophy; is staffed by dedicated and competent personnel; and has an enthusiastic network of professional and community supporters. The project is superbly designed and well implemented, and it has an excellent staff, especially the resource teacher. The project should be funded as proposed so that it can go forward with maximum effectiveness.

Teachers, principals, and students alike have been most enthusiastic about the project. Its approach to learning E.S.L. through content-area courses is a major educational innovation. The program may appropriately be singled out as a forerunner of trends that are likely to become the norm for the instruction of LEP students. Project MASTER's multisensory approach appears to be highly effective. Although it works for students of all ages, it is especially effective with elementary school LEP students, who need to learn the English language as quickly as they can but cannot be permitted to lag behind in social development or the acquisition of basic content-area knowledge.

Student performance on evaluation tests indicates that MASTER students made statistically significant gains in English and science, which means

that the project met the objectives proposed for these areas.

Although students' N.C.E. scores in mathematics decreased from pretest to posttest, the decrease was statistically significant only among fifth graders.

In the project's non-instructional component, the objective was met in the area of staff development, but it was not met in the area of parental involvement because a full-time parent trainer was lacking.

RECOMMENDATIONS

Six educational assistants (one per school) had been proposed, but only two educational assistants and one parent trainer were funded. This meant that each one had to divide her time among three to seven classes at three or four different grade levels in two schools, making their job a terribly difficult one. The need for the parent trainer to also serve as a part-time educational assistant made it impossible for the project to achieve its parental involvement goal. To make matters even more difficult, one resource teacher had to work at all six sites, doing the work of two teachers. Two positions had been proposed, one for mathematics and science, and another for computer training. But because of the elimination of the computer resource teacher's position, the program had to modify its initial computer-assisted instructional plans and had to try to secure additional outside help. Although project personnel performed quite creditably despite this understaffing, this frantic pace should be avoided. Therefore, if the project cannot employ all six of the proposed educational assistants, it should revise the scope of its work and of its objectives.